Building Collaborative Relationships with Chinese Research Institutions

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Outline

- Arizona State University
- ASU’s China engagement
- Rapid urbanization
- Beijing Science and Technology Week
- ASU-China space science collaborations
- Solar technologies
- Lessons learned
Arizona State University

- One of largest universities in U.S. (63,000 students)
- In Phoenix, 5th largest, fastest-growing large city in U.S.
- Young research university (1st Ph.d. in 1966)
- Research Expenditures: $75M in 1997 to $203M in 2006
- Emphasizes transdisciplinary schools and programs
- **Strengths in supply chain management, urban sustainability, planetary exploration, solar technology, flexible displays**
The American research university is a remarkable institution, being a source of admiration and wonder. The idyllic, wooded campuses, the diversity and energy of the student populations, and, most of all, the sheer volume of public and private resources available to run them, have long made them the envy of the world. Seen from the inside, however, everything is not quite so rosy. Setting aside the habitual complexity of medical schools, which have separate healthcare and finance issues, the structure of these institutions is straightforward and consist of the bedrock of each university is a system of discipline-specific departments. The strength of these departments determines the success and prestige of the institution as a whole.

This structure raises a few obvious questions. One is the relevance of the department-based structure to the way scientific research is done. Many argue that in a host of areas — ranging from computational biology and materials science to pharmacology and climate science — much of the most important research is now interdisciplinary in nature. And there is a sense that, notwithstanding years of efforts to adapt to this change by encouraging interdisciplinary collaboration, the department-based structure of the university is essentially at odds with such collaboration.

A second set of issues surrounds the almost static nature of the departmental system. In a country where most things are highly fluid, the fields of view by departments, as well as the pecking order between them, have remained largely unchanged for many years. As people and money have flowed, particularly over the past twenty years, to the south and the southwest, the strongest US universities and departments remain embedded in the northeast and in California. League tables drawn up by the National Academy of Sciences and others show little movement in this pecking order, even over several decades.

Another, perhaps more contentious, issue concerns the relevance of the modern research university to the community it serves. The establishment model, whatever else its strengths and weaknesses, reflects the desire of the middle classes for an undergraduate training that prepares their offspring for a stable career. But how does it serve a society in which people may have to retrain and recreate their careers throughout their adult lives?

These questions are being asked throughout American academia, but nowhere more searchingly than at Arizona State University (ASU), a huge public university that is expanding to meet the needs of the United States' fastest-growing major city (see page 96). Michael Crow, its president, is executing an ambitious plan to replace the traditional model, in which both influence and research excellence are concentrated in its departments, but in large, broadly based interdisciplinary centres with clear commercial or societal goals. Whatever its outcome, this experiment will not of itself uproot the traditional university system. Incremental change, notably the establishment of stronger multidisciplinary entities such as Bio-X at Stanford University in California, and several new centres at Harvard, may have a greater bearing on the overall development of the system. But ASU's effort already tells us plenty about the likely direction of the research university in the up-and-coming region of America. The university of the future will be inclusive of bread swathes of the population, actively engaged in issues that concern them, relatively open to commercial influence, and fundamentally interdisciplinary in its approach to both teaching and research.

Chinese Ministry of Education interested in this model
Why China?

Establish foothold in world’s fastest-growing economy
Gain access to excellent students and collaborations
Extend relevant research programs to Chinese context
ASU’s global engagement focuses on China & Mexico
Advance ASU’s global reputation
ASU in China: Leveraging strong programs

Business School starts Beijing MBA with Motorola - 1998
Business School starts Shanghai MBA, in Mandarin - 2003
ASU joins China-US Center for Sustainable Development - 2004
Rapid urbanization ties start (CAS, Tsinghua, MLR, WB) - 2004
Beijing Science & Technology Week - May 2005
Planetary & space science links (Tsinghua, BUAA, CAST) - 2005
Suntech, Tsinghua Solar, Tsinghua Holdings mtgs – 12/06, 6/07
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Rapid urbanization in China and U.S.

- ASU has major NSF programs on rapid urbanization
- Phoenix and Beijing confront similar challenges
  - Rapid population growth
  - Water shortage
  - Air pollution
  - Heat island
  - Traffic
- ASU-CAS Joint Center on Urban Sustainability
- ASU-CAS proposal to MOST submitted this week
Joint Center on Urban Sustainability: Challenges

- #1: Interdisciplinarity
- #2: Stakeholder engagement
- #3: Data access and data sharing
- #4: Security concerns about visitors
- #5: Keeping on the CAS radar screen
Beijing Science & Technology Week
May 14-20, 2005

• Annual event in all major Chinese cities
• Largest is in Beijing
• ASU’s “Welcome to Mars”: Centerpiece for 2005
• First non-Chinese institution to participate in CS&TW
• Excellent media coverage, branding opportunity
• Required contacts, major logistic effort and money
Beijing Science & Technology Week
Science & Technology Week
Near-fiasco #1:
ITAR and Mars Rover
Near-fiasco #2: Just-in-time construction
Near-fiasco #3: Taiwan
Possible ASU-China space collaborations

- President, Beijing Univ. Aero & Astronautics
- Dean, Tsinghua School of Aerospace
- VP, China Academy of Space Technology
- 1st Chinese Taikonaut, Yang Liwei
- President, Tsinghua Holdings (top tech-transfer org)
Possible ASU-China space collaborations

Pluses - Minuses

- Lays groundwork for partnerships, joint degrees
- Provides access to good students, post-docs
- Opens doors for future joint programs
- Distinguishes ASU from other U.S. universities
- NASA, DoS, DoD “unenthusiastic”
- Possibly targets us for more scrutiny in China, U.S.
- Difficult to obtain funding on either side
www.china.com.cn

• Largest Chinese government website
• Met during Beijing S&T Week
• Set up ASU-branded Mars website
• Webcast about ASU across China
• Organizing science competition with ASU
• Winning students get ASU scholarships
ASU’s “guanxi map” for Space Sciences

Jennie Si

Tsinghua School of Aerospace
china.com.cn
BUAA
CAST

Space Science collaborations
china.com.cn High school competition

X
X
Solar energy connections

- ASU has one of oldest solar energy programs in US
- Has only Photovoltaic Testing Lab in North America
- State’s reputation needs large solar manufacturer
- Suntech largest solar company in China
- Suntech to open U.S. manufacturing plant this year
- ASU trying to help lure Suntech to Phoenix
Solar energy & Tech Transfer

- Tsinghua U and Peking U: Beijing’s Silicon Valley
- Tsinghua Holdings: largest tech transfer org in China
- Holdings’ Research Park: Google, Microsoft, IBM
- Holdings: investment capital from real estate
- Chinese investors looking to U.S. and vice versa
- U.S. companies need local representative to survive
- Tsinghua Solar – one of first Tsinghua spinouts
- Tsinghua Solar lost IP to other Chinese companies
Lessons learned?

- If in doubt, get translators
- Find guides from best schools
- Get past ceremonial stage fast
- Politics can intrude at any time
- Research issues are changing fast
- Anything is possible with right contacts
- First impressions important; so are second
- Building programs expensive; piggyback with others
Lessons learned?

SPEAKING CELLPHONE IS STRICTLY PROHIBITED WHEN THUNDERSTORM

NOTICE

一、患有心脏病、高血压、精神病、恐高症及酗酒者，谢绝乘坐；
二、年龄在65岁以上及行动不便者谢绝乘坐；
三、每日只限

1. Those who suffer from high blood pressure, mental disease, horrifying of highness and liquor heads are refused.
2. Those who are above 65 or have physical problems are refused.